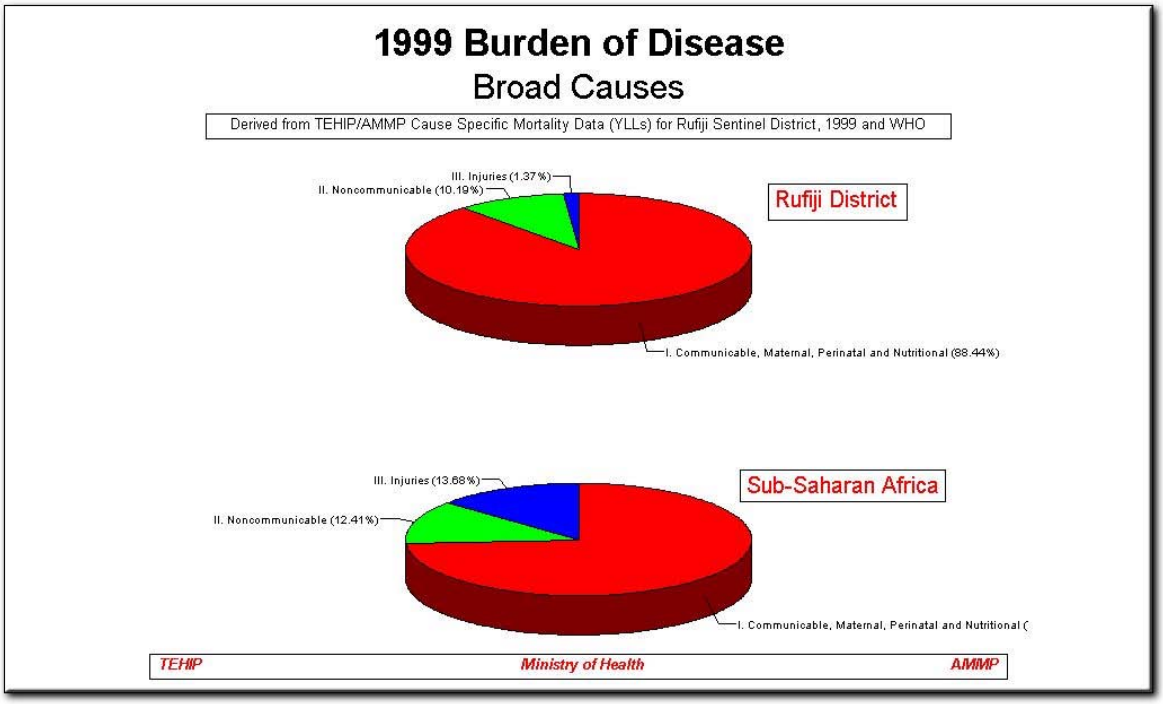
BURDEN OF DISEASE PROFILE

Rufiji District, Coast Region, Tanzania

1999

Graphical Views of Selected Health and Demographic Indicators



Prepared as a DHMT Evidence Source for the

2000-2001 District Health Plan and
2001-2002 District Health Planning Cycle

Data Source: TEHIP / AMMP Rufiji Demographic Surveillance System Data for 1999
Tool Version: TEHIP Burden of Disease Information Tool, Vers. 5.6
Document Version: November 17, 2000

BURDEN OF DISEASE PROFILE
Rufiji District - 1999

1. Introduction:

The purpose of this document is to simplify and package complex information on the local burden of disease into a practical and readily accessible format. It is intended for use by the District Health Management Team. This information should be considered for use as part of the situation analysis for the annual District Health Planning cycle. Almost all the information is provided in a graphical format to provide a picture of the local disease burden. The source of this information is re-processed mortality data from the TEHIP / AMMP Rufiji Demographic Surveillance System for the fiscal year 1999, the most recent year for which complete data are available. As new data becomes available annually, these graphics will be updated. In 1999, the Rufiji Demographic Surveillance System monitored over 70,000 Rufiji residents representing a very large sample of the total Rufiji population. In order to avoid abstract epidemiological concepts, rates, and measures focused on disease, we present the burden of disease[1] according to shares of the total burden targeted by interventions available to DHMT's and rural district health services. These intervention addressable shares of the total burden of disease are presented in a pictorial format as follows. A short section of tables is also included at the end of this document to project the profile to the District-wide population.

2. Intervention Addressable Burden of Disease Graphics:

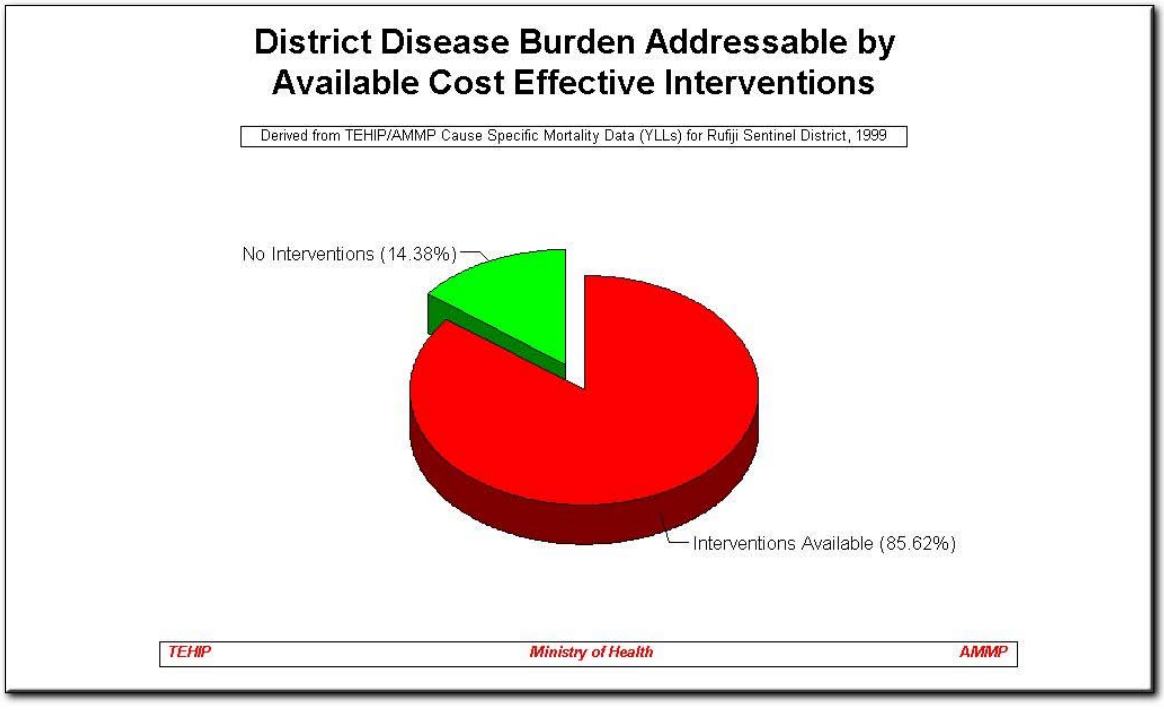


Figure 1. 1999 District Disease Burden Addressable by Available Cost-Effective Interventions

Although it is not possible to prevent all premature mortality, the above graphic shows the good news that 85.6% of the 1999 premature mortality burden can be addressed by available, cost effective interventions supported by District Health Plans. As new cost-effective interventions become available for the non-addressed 14.4% of the burden, these can also be considered for inclusion in the National Package of Essential Health Interventions.

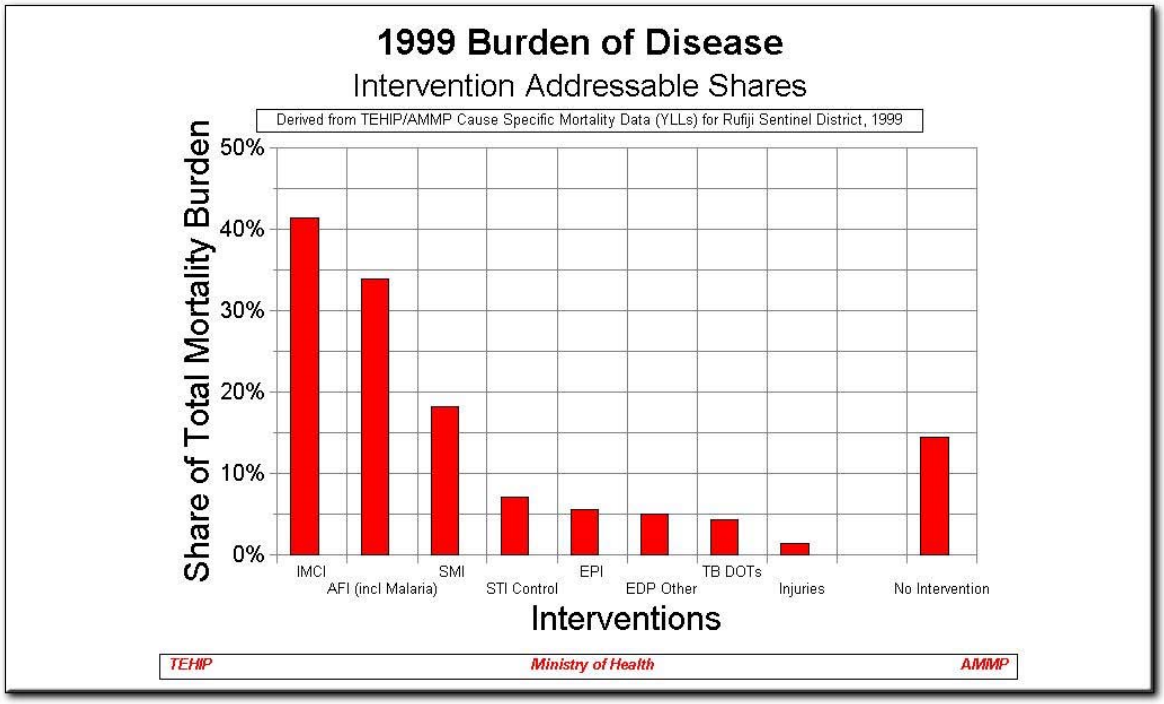


Figure 2. 1999 Burden of Disease: Intervention Addressable Shares

The above graphic shows how much of the total burden of disease is addressed by each essential health intervention package currently available at District level (i.e. Case management and prevention for acute febrile illnesses including malaria, Integrated Management of Childhood Illnesses, Safe Motherhood Initiative, STD Syndromic Management, EPI, EDP, TB DOTS and Injury Care). Since some diseases are addressed by more than one package, these shares are not intended to be additive. The category labeled *No Intervention* (14.4%) is all remaining disease burden not yet addressable by an essential health intervention. The above figure is also integrated into the TEHIP District Health Accounts Tool.

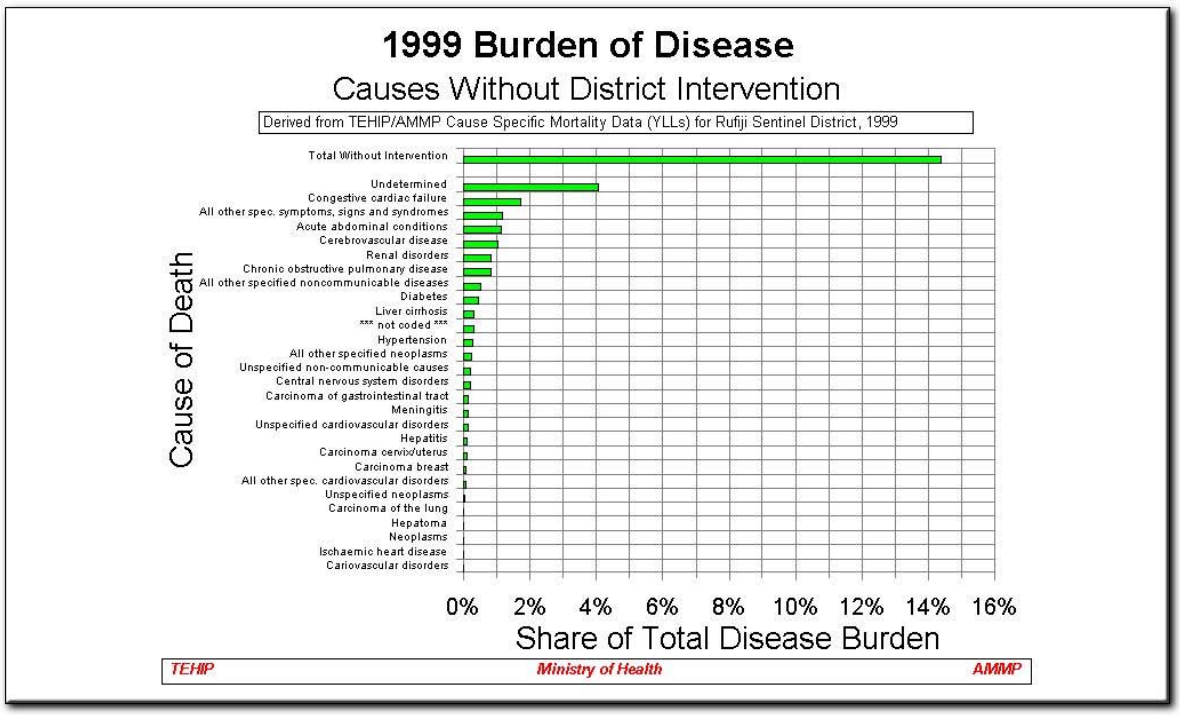


Figure 3. 1999 Burden of Disease: Causes without District Intervention

The causes of death that make up the 14.4% share currently not yet addressed by cost-effective essential health interventions are shown in the above graphic. Most of these identifiable causes individually constitute less than 1% of the total burden of disease in the population and will be difficult to address cost-effectively.

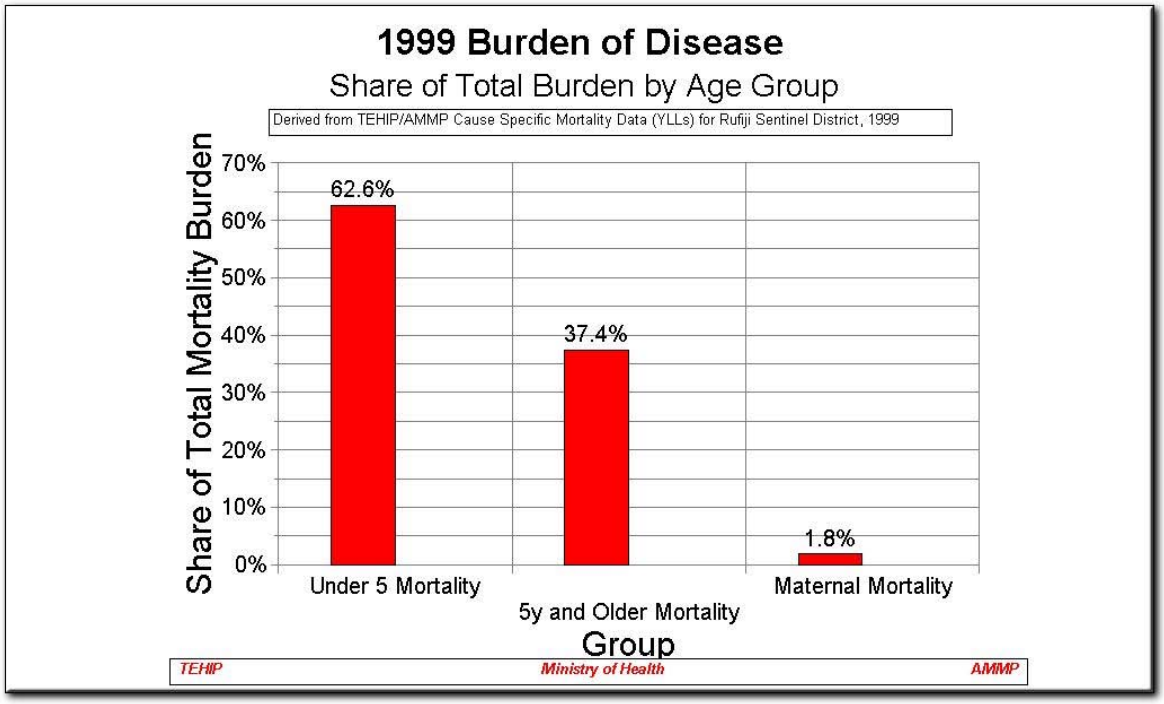


Figure 4. 1999 Share of Total Mortality Burden by Age Group

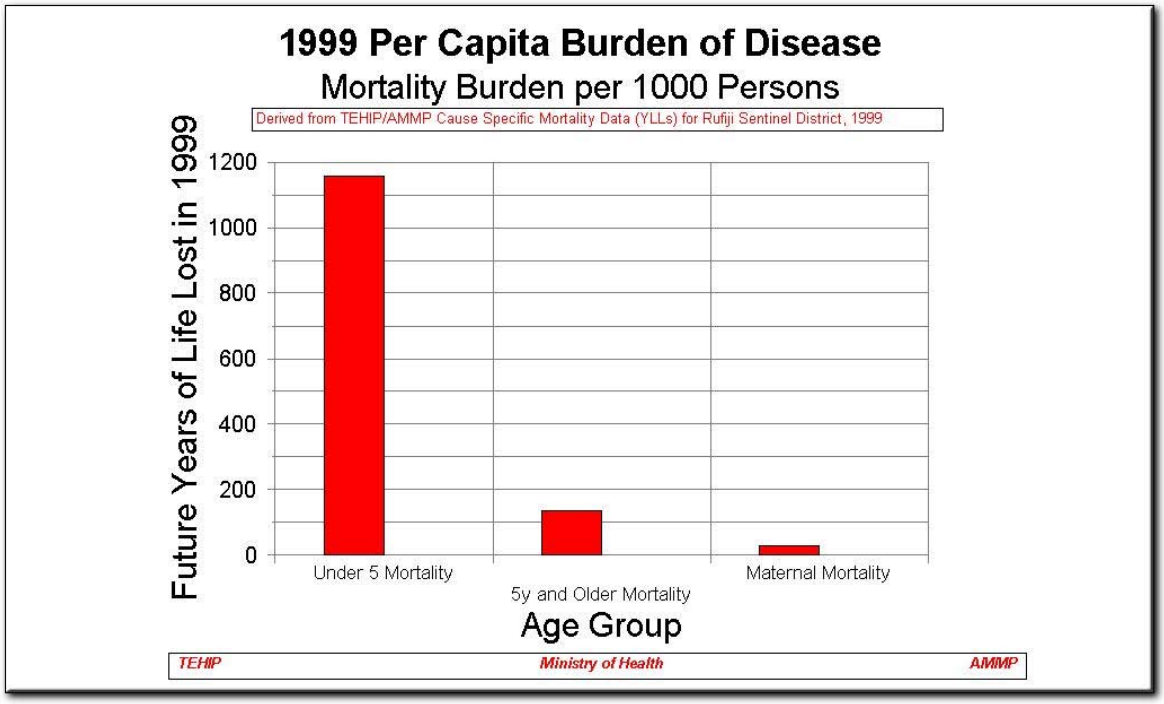


Figure 5. 1999 Per Capita Burden of Disease by Age Group

The two graphics above illustrate the disproportionately high risk of disease burden carried by children. Figure 4 shows that over half (62.6%) of the total population's burden of disease is experienced in the first 5 years of life. This is consistent with what is seen in other parts of rural Africa and higher than previous estimates provided to Rufiji from the Morogoro DSS. The risk of maternal mortality is also provided for perspective. Figure 5 adjusts this picture to show the relative burden of disease on a per capita basis for each of the three age categories since the categories are not equal in size (5, 80+ and 35 year classes respectively).

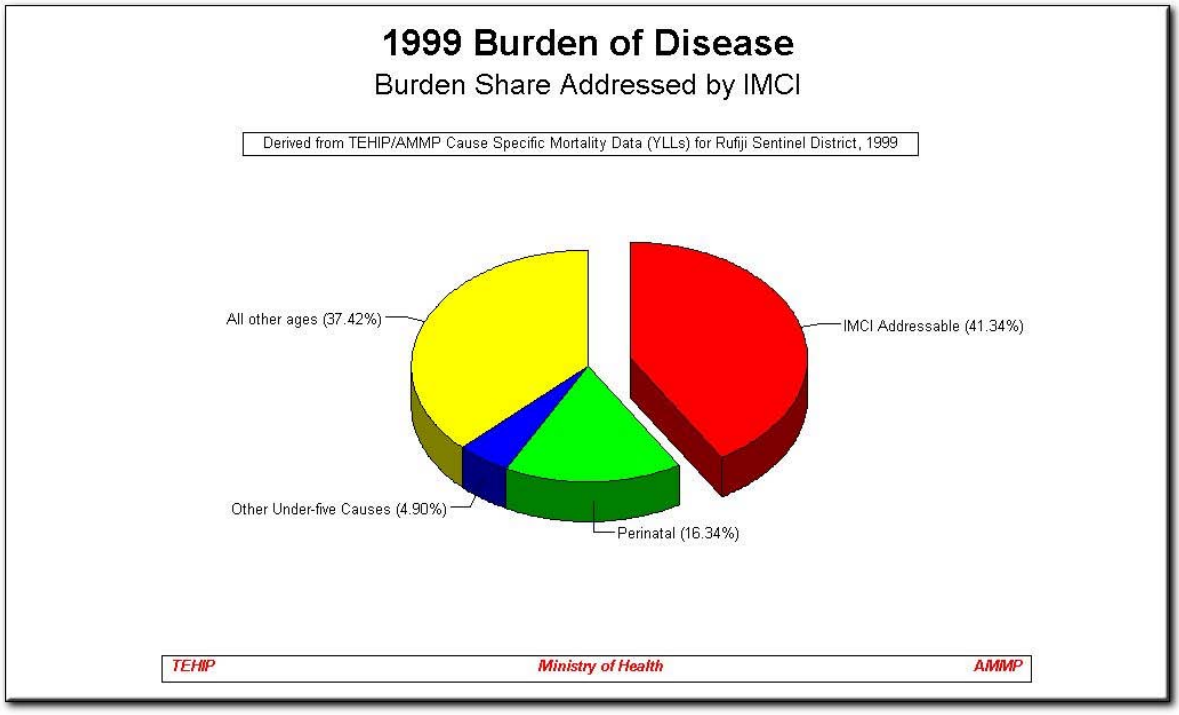


Figure 6. 1999 Burden of Disease: Burden share addressed by IMCI

Children under the age of five carry the highest per capita share of the total burden. The above graphic shows that about 41% of the total burden of disease can be addressed by a single intervention investment in IMCI, an integrated essential health strategy targeted to under-fives.

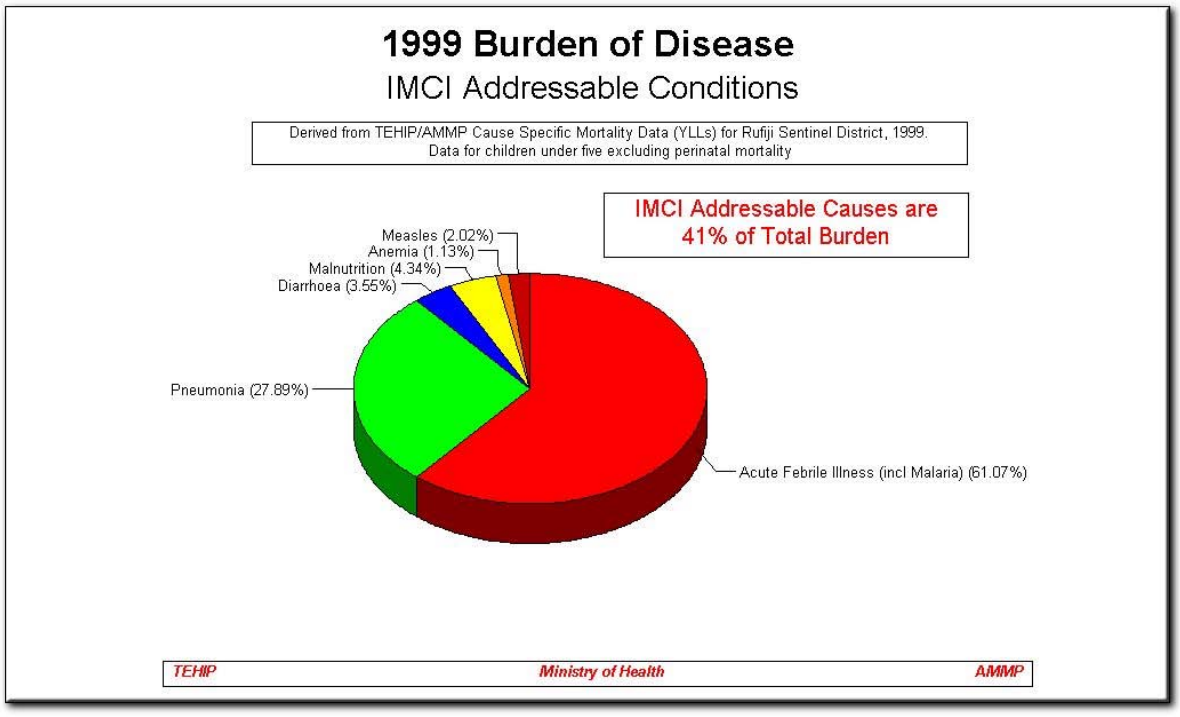


Figure 7. 1999 Burden of Disease: IMCI Addressable Conditions

The IMCI strategy addresses the largest single share of the District disease burden. The above graphic illustrates the relative contribution of the individual component causes addressed by the IMCI strategy. Acute febrile illness including malaria constitutes over 61% of this burden and this illustrates the importance of providing efficacious preventive and curative interventions for malaria.

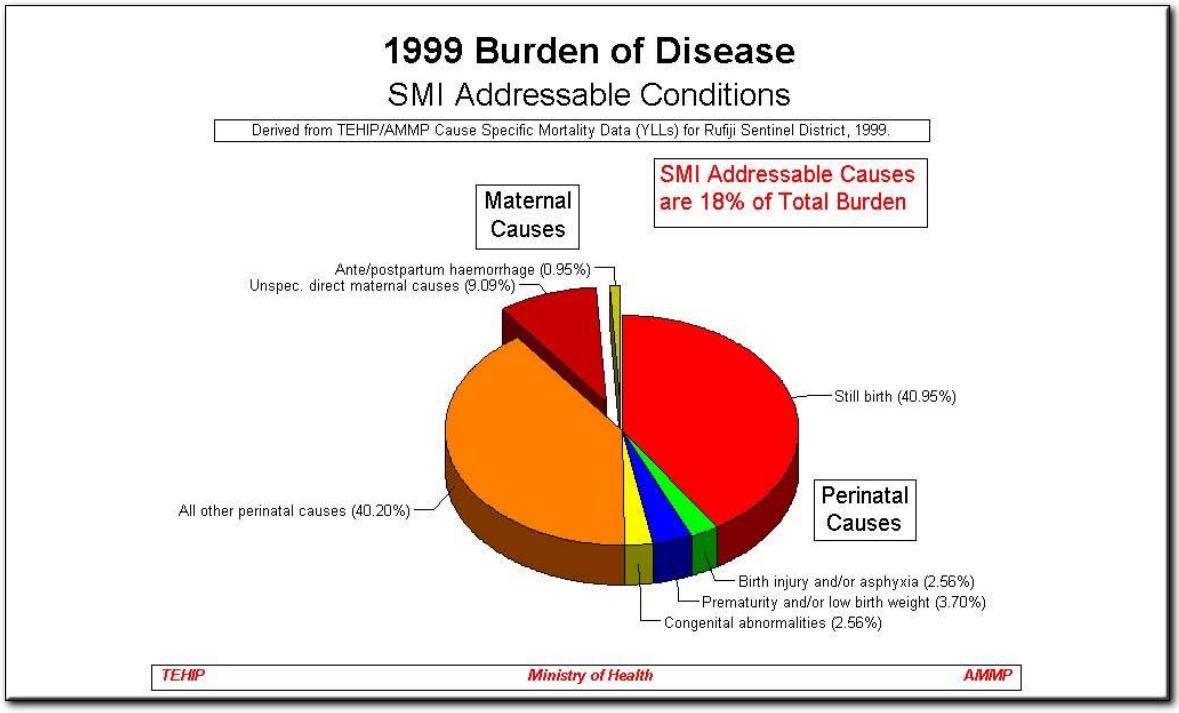


Figure 8. 1999 Burden of Disease: SMI Addressable Conditions

The above graphic illustrates the relative portions of local mortality addressed by the Safe Motherhood Initiative that are perinatal or maternal, and within these groupings, the component causes. Again perinatal mortality dominates. Neither Perinatal nor Maternal Mortality is addressed directly by IMCI, hence the importance of selecting efficacious interventions from the SMI strategy.

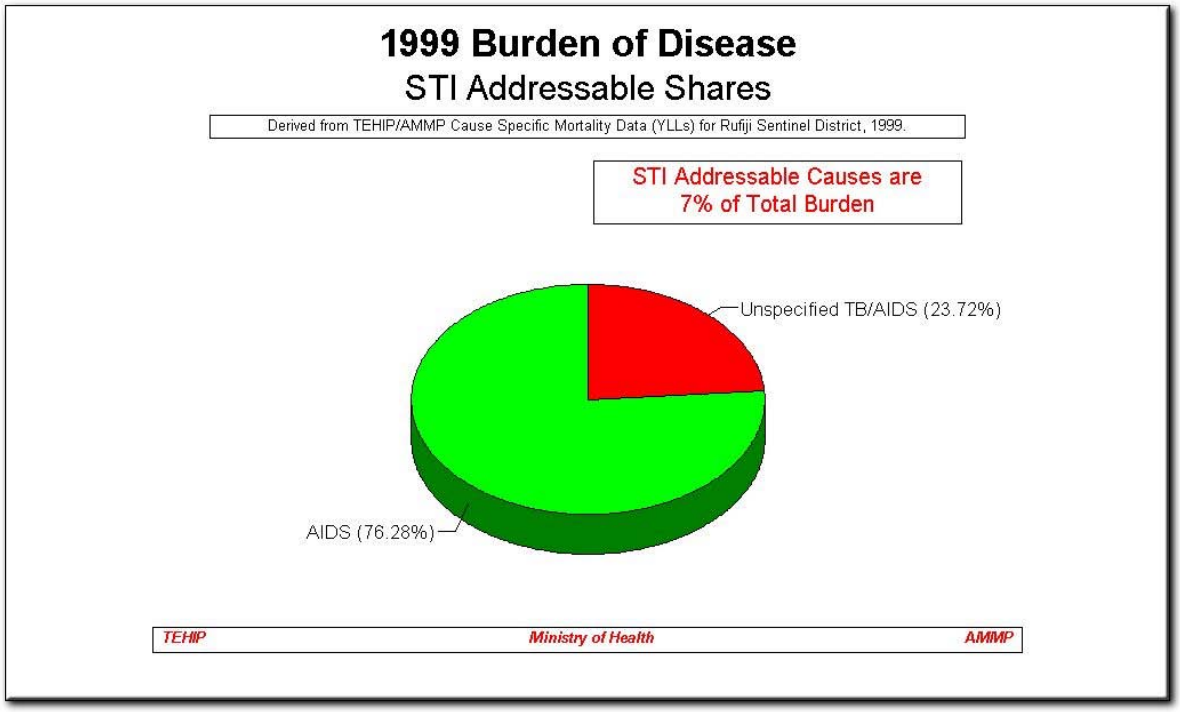


Figure 9. 1999 Burden of Disease: STD Addressable Conditions

The above graphic illustrates that much sexually transmitted disease mortality is caused directly or indirectly by HIV infection and AIDS. This constitutes about 7% of the total disease burden in 1999. This can be partially addressed by carefully selected reproductive health interventions.

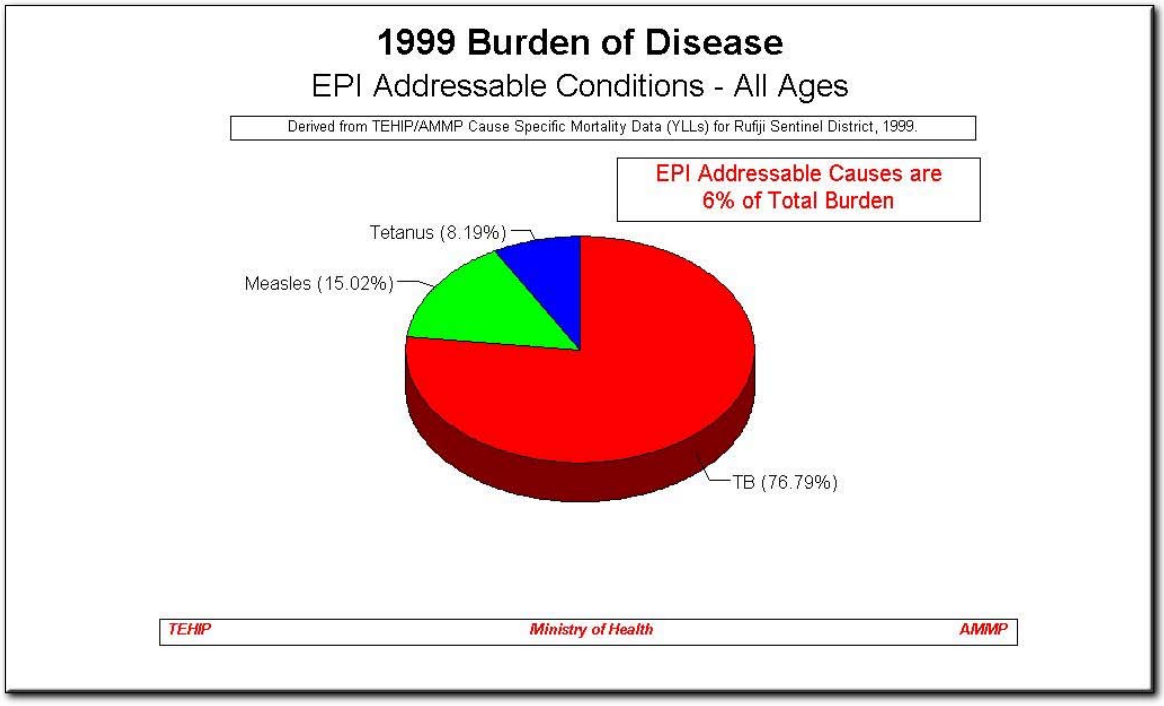


Figure 10. 1999 Burden of Disease: EPI Addressable Conditions

The above graphic illustrates the success of EPI as an essential health intervention. The current high coverage of EPI has reduced this previously high burden to only 6% of the total burden. Remaining causes are tetanus and measles, however TB is rising due to HIV. This illustrates the importance of maintaining EPI at high coverage and supporting additional interventions for measles (e.g. IMCI), Tetanus (eg. SMI) and TB (e.g. TB DOTS).

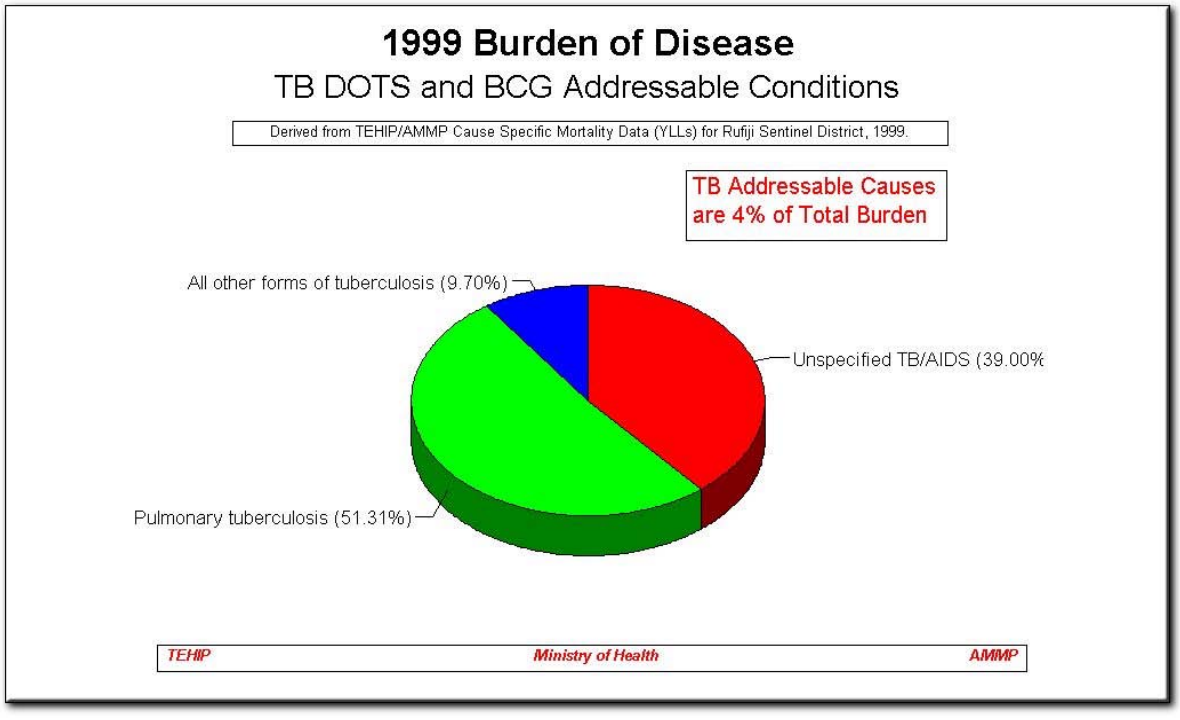


Figure 11. 1999 Burden of Disease: TB DOTS and BCG addressable conditions

HIV is believed to increase the risk of TB mortality. This illustrates the importance of increasing the coverage and integration of both TB DOTS and STD Syndromic Management as well as maintaining high BCG coverage in newborns.

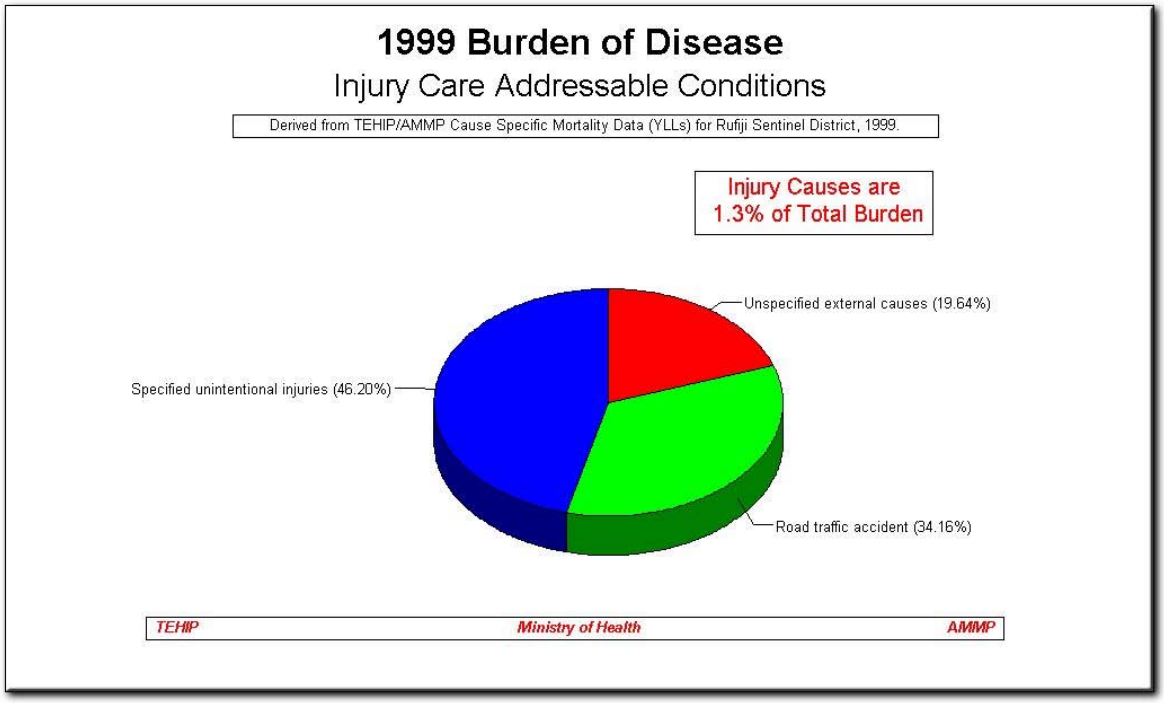


Figure 12. 1999 Burden of Disease: Injury Care Addressable Conditions

The above graphic illustrates the relatively low but important burden of disease that can be addressed through life-saving interventions brought to bear on injuries through adequate risk avoidance and injury care. This illustrates the importance of maintaining a regular supply of essential drug kits and other supplies that include materials for injury care. It also suggests the need for appropriate interventions in other sectors, e.g. to address the risk of road traffic accidents.

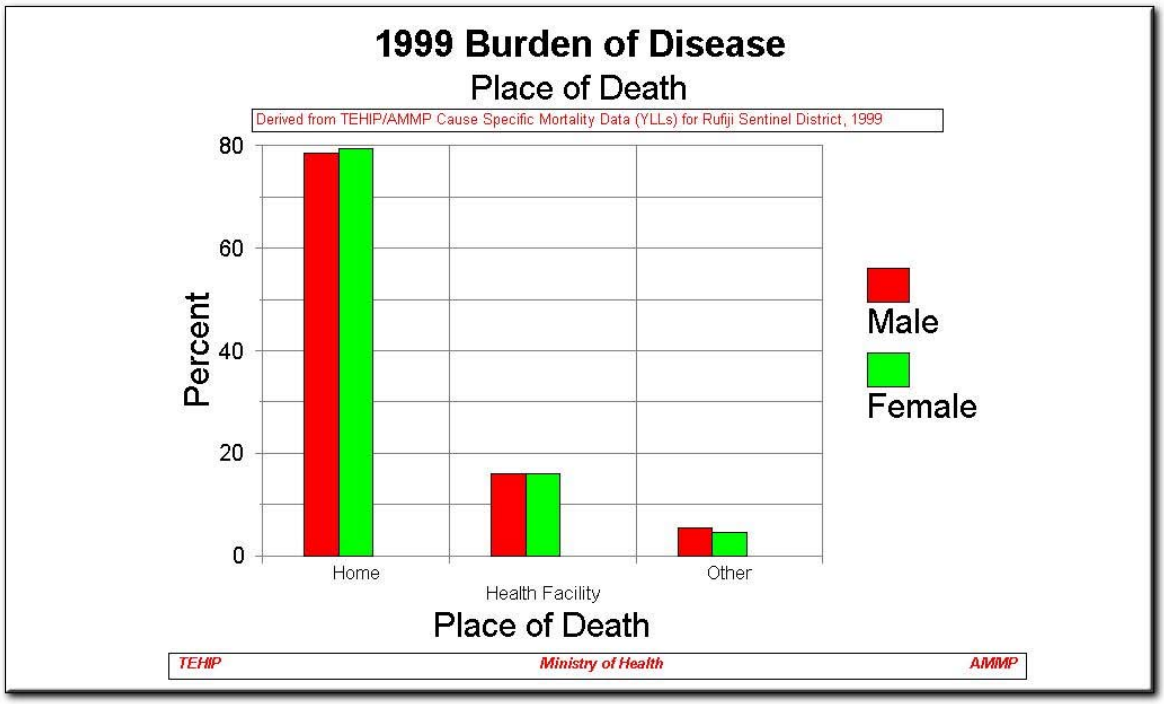


Figure 13. Place of Death

The above graphic illustrates that about 80% of all deaths occur at home for both males and females. This emphasizes the need to consider household based data when assessing the burden of disease in the population, and not only Health Facility data.

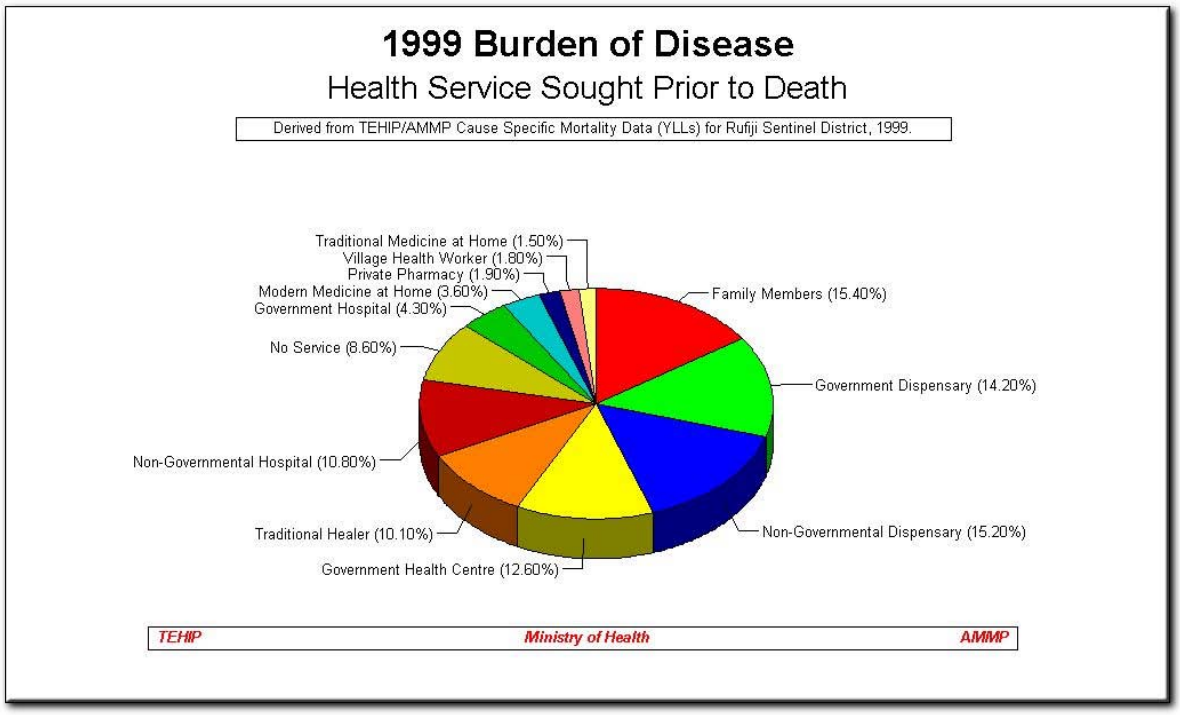
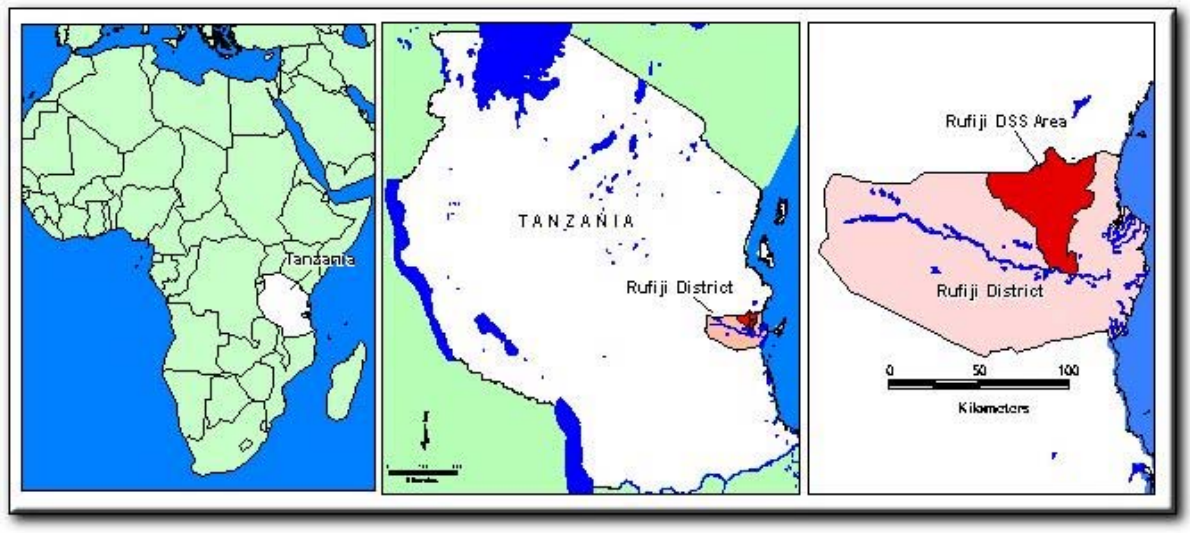


Figure 14. Health Services Sought in the Illness or Condition Leading to Death.

People often seek health services from more than one source during an illness. For illnesses leading to death, the above graphic illustrates the distribution of services sought. It should be noted that 54.6% of deaths included formal health seeking behaviour (Government or Non-governmental hospitals, health centers, dispensaries or village health workers) for such life threatening conditions. 36.8% of deaths included informal services (family members, traditional healers, and shops) while 8.6% used no service at all. This pluralism in household level health seeking during life threatening illnesses and conditions illustrates the need for a comprehensive District Health Plan engaging all partner providers in order to ensure that the population has acceptable access to essential health interventions and information. This also illustrates the need to consider information from a broad range of health providers as part of the District's health management information system

Figure 15. Location of the Rufiji DSS Area in Rufiji District



The above map indicates the location of the area in which the Rufiji DSS operates. The entire population in this area is monitored continuously for births, deaths and migrations, with verbal autopsies on all deaths.

3. Additional Demographic Information from the Rufiji DSS

The information provided in Section 2 can be used by Districts with socio-economic, epidemiologic, and health service profiles similar to Rufiji District. Section 3. is specific to Rufiji District. It summarizes some key indicators generated by demographic surveillance that can be used for estimating local populations at risk of particular disease burdens, or in need of particular interventions in Rufiji District.

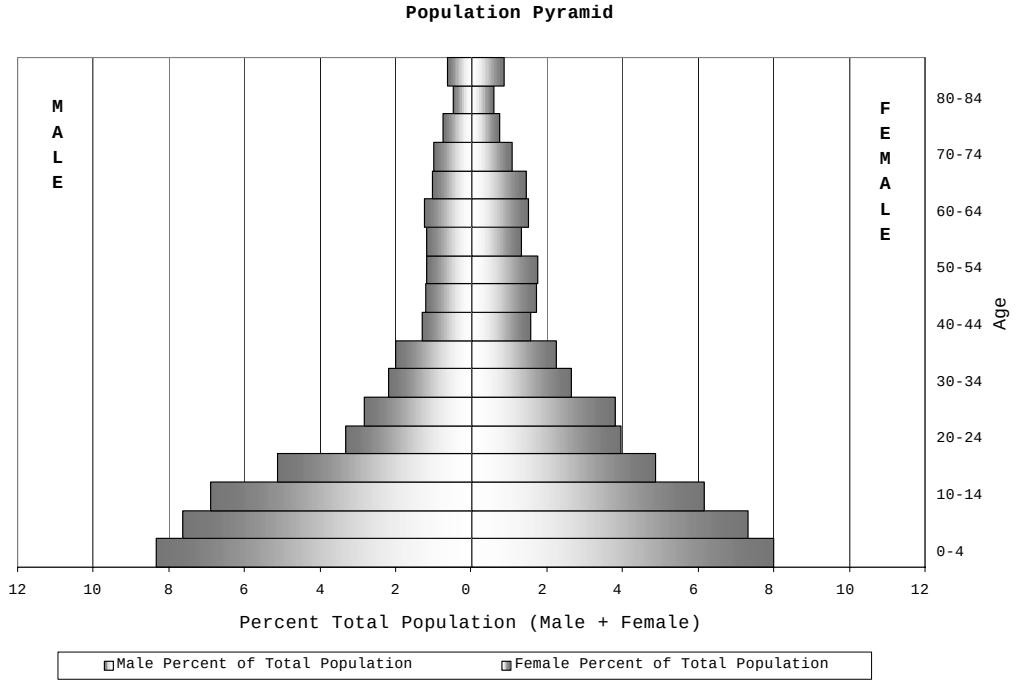


Figure 16. Age and Sex Structure of the Population

The above graphic displays the 1999 population pyramid for the Rufiji DSS area. This describes the age and sex distribution of the population and reflects the combined history of births, deaths and migration on the structure of the current population. The wide base indicates that child and young adult health problems will continue to dominate the public health priorities of this area for many years to come. In the absence of a recent national census, extrapolations from this structure can be used to estimate district-wide populations in need of public health services. These are provided in Table 1 below.

Table 1. Selected Rates and Indicators from the Rufiji Demographic Surveillance System

Selected Rates, Probabilities and Statistics (Rufiji DSS Area, 1999)		
Crude Birth Rate	39.68	births per 1000 population
Crude Death Rate	15.02	deaths per 1000 population
Crude Growth Rate	24.66	per 1000 population
Age Standardized Crude Death Rate	10.53	per 1000 population
Maternal Mortality Ratio	392.9	per 100,000 live births (95% CI=196-703)
Probability of Death by age 5	179.4	per 1000 children
Total Fertility Rate	6.2	children per woman 15-49 years old (avg)
Dependency Ratio	110	people <15 or >64 per 100 people 15 to 64
Average Household Size	4.8	people per household
Projections for Rufiji District for 2001-2002 (based on Rufiji DSS data)		
Projected District Population	186,644	
Projected Number of Births	7,406	
Projected Number of Under Five Deaths	1,093	
Projected Number of Maternal Deaths	29	
Projected Population <5 years (Children)	30,460	
Projected Population 5-14 (School Aged)	52,242	
Projected Population 15-64 (Adult)	87,853	
Projected Population 65+ (Elderly)	16,089	
Projected Population Female 15-49 (Maternal)	39,009	

For further information on the Burden of Disease Information Tool, contact:

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TANZANIA ESSENTIAL HEALTH INTERVENTIONS PROJECT
Ministry of Health
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Dar es Salaam
Tanzania
Tel: 255 22 213 0627
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For further information on the use of DSS mortality data for other districts in the National Sentinel DSS System, contact:

NATIONAL SENTINEL DSS SYSTEM
Ministry of Health
Box 9083
Dar es Salaam
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Tel: 255 22 216 0261
Eml: manumbu.moh@twiga.com
Attn: Dr. Henry Kitange or Mr. Fred Macha

For further information on the Rufiji Demographic Surveillance System regarding characteristics of the population monitored, the methods used, and the basic outputs see:

Mwageni, E., Momburi, D., Juma, Z., Irema, M., and Masanja, H. (2001). **The Rufiji Demographic Surveillance System.** In*: INDEPTH Monograph Series: Health Demographics in Developing Countries, Volume 1: Population, Health and Survival at INDEPTH Sites*. International Development Research Centre, Ottawa, Canada.

Or contact:

Rufiji DSS Station Manager
Box 40
Ikwiriri, Rufiji District
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Tel: 255 023 999 (ask for 31)
Attn: Dr. Eleuther Mwageni

[1] Since premature mortality represents almost 80% of the expected burden of disease in sub-Saharan Africa as estimated by the Disability Adjusted Life Year (DALY), the Burden of Disease Information Tool uses the mortality portion of the DALY (future years of life lost or YLLs) as a proxy measure of the distribution of the burden of disease. All graphics showing the shares of the burden of disease are based on YLLs. These YLLs use standard DALY age weighting and discounting. Cause specific mortality and associated YLLs are generated through continuous, direct, demographic surveillance in Rufiji District using the HRS Household Registration System.

[2]The Rufiji Burden of Disease Information Tool for the year 2000 will be available by April 2001.

[3]The Tanzania Essential Health Interventions Project (TEHIP) is funded in part by a grant from the International Development Research Centre, Canada (IDRC) and implemented in collaboration with the Tanzania Ministry of Health.

[4]The Adult Morbidity and Mortality Project (AMMP) is funded by the UK Department for International Development (DFID) and implemented in partnership with the University of Newcastle upon Tyne as a project of the Tanzania Ministry of Health.